IN THE CLAIMS

1. (currently amended) A method for transmitting data in a linear-type or ring-type network structured by a plurality of nodes and two-way transmission lines each connecting between adjacent nodes;

wherein each node operates as a left terminal equipment, a right terminal equipment, or an intermediate equipment; the left and right terminal equipments prepare token packets each including a transmission right and packet trailers including data packet storage area; the left terminal equipment transmits the packet trailers on a right direction line of the two-way transmission line; and the right terminal equipment transmits the packet trailers on a left direction line of the two-way transmission line;

wherein, when a request for transmission for transmitting data packets to the right direction is generated by the right terminal equipment, each intermediate equipment writes ~~the~~ a request for transmission in a ~~the~~ token packet of a ~~the~~ packet trailer on the left direction line; and when a ~~the~~ request for transmission for transmitting data packets to the left direction is generated by the left terminal equipment, each intermediate equipment writes a ~~the~~ request for transmission in a ~~the~~ token packet of a ~~the~~ packet trailer on the right direction line; and each intermediate equipment performs the request for transmission;

wherein, when the request for transmission for transmitting data packets to the right direction is generated, the ~~left and~~ right terminal equipment prepares a ~~equipments prepare the~~ packet trailer having data packet storage area to ensure a reservation area for each ~~the~~ intermediate equipment, ~~which transmitted the request for transmission,~~ based on the request for transmission of the ~~each~~ intermediate equipment, which is

written in the token packet of the packet trailer prepared by the right ~~transmitted from the opposite~~ terminal equipment, and when the request for transmission for transmitting data packets to the left direction is generated, the left terminal equipment prepares a packet trailer having data packet storage area to ensure a reservation area for each intermediate equipment, based on the request for transmission of the intermediate equipment, which is written in the token packet of the packet trailer prepared by the left terminal equipment; and

wherein each intermediate equipment which performed the request for transmission temporarily stores the data packet in the reservation area of the packet trailer, and transmits the data packet to a destination node.

2. (currently amended) A transmission apparatus provided in each of a plurality of nodes which are connected through two-way lines in a linear-type or ring-type network;

wherein the transmission apparatus in each node comprises a function to operate as either a terminal equipment or an intermediate equipment;

wherein the transmission apparatus, to operate as a terminal equipment, comprises:

means for preparing packet trailers each having a storage area to store token packets and data packets and for transmitting the packet trailers on the two-way transmission line toward another terminal equipment ~~when the transmission apparatus operates as a terminal equipment~~, ~~and~~

means for receiving the packet trailers transmitted from the ~~opposite~~ other terminal equipment over ~~and delivered on~~ the two-way transmission line and for terminating the packet trailers~~; further~~, and ~~the transmission apparatus comprises~~

means for storing ~~a~~ transmission rights ~~right~~ in ~~the~~ token ~~packet~~ packets of the prepared packet trailers, in which the transmission rights are ~~right is~~ applied to ~~the~~ intermediate equipment ~~which performed the request for transmission~~, based on requests ~~a request~~ for transmission of the ~~each~~ intermediate equipment written in the packet trailers ~~trailer~~ transmitted from the other ~~opposite~~ terminal equipment ~~on the way of delivery~~, and for transmitting the prepared packet trailers including the token packets ~~having the transmission right to~~ toward the other ~~opposite~~ terminal equipment; and

wherein the transmission apparatus, to operate as the intermediate equipment, further comprises:

means for writing ~~the request~~ requests for transmission in ~~the~~ token packets ~~packet~~ of the packet trailers transmitted by the other terminal equipment ~~trailer directed to the direction opposite to the data transmitting direction, when the transmission apparatus operates as the intermediate equipment, and when the request for transmission of the data packet is generated;~~, and

means for storing the transmission data in ~~the~~ packet trailers ~~trailer~~ in accordance with the transmission rights ~~right~~ of the token packets ~~packet~~ including the requests for transmission written in the packet trailers prepared by the terminal equipment, ~~trailer directed to the same direction as the data transmission~~, and for

transmitting the packet trailers prepared by the terminal equipment toward the other terminal equipment ~~data packet to the node of destination~~.

3. (original) A transmission apparatus as claimed in claim 2, further comprising;

means for detecting abnormal reception of data frames transmitted from the two-way transmission line and abnormal transmission in its own apparatus;

means for switching the apparatus to an equipment operating as the terminal equipment when data frames are not received from the apparatus of an adjacent node, and for transmitting a terminal-reminding frame to the apparatus of the adjacent node in order to request operation as the terminal equipment; and

means for determining whether the apparatus operates as either the terminal equipment or the intermediate equipment, based on a terminal-informing data frame informed from the apparatus transmitted from another node, and the terminal-reminding frame.

4. (original) A transmission apparatus as claimed in claim 2, further comprising;

means for writing an address of its own node in the packet trailer delivered on the two-way transmission line; and

means for reading other node addresses written by other nodes from the packet trailers delivered on the two-way transmission line and for recognizing an arrangement of nodes at the left and right directions, based on other node addresses.

5. (original) A transmission apparatus as claimed in claim 2, further comprising;

means for preparing a plurality of independent packet trailers each including the token packet when the apparatus operates as the terminal equipment, and for transmitting the packet trailer which ensured a reservation area for the intermediate equipment which performed a request for transmission; and

means for storing the transmission data in the reservation area in accordance with assignment of reservation based on the transmission right in the token packet and transmitting the data.

6. (original) A transmission apparatus as claimed in claim 5, further comprising; means for storing the transmission data in a vacant area when the apparatus operates as the intermediate equipment, and when there is the vacant area in the packet trailer at the direction of data transmission, and for releasing the reservation area when the packet trailer having the reservation area assigned in accordance with the transmission right, and when there are no remaining transmission data.

7. (original) A transmission apparatus as claimed in claim 2, further comprising; means for writing the transmission data adding a priority order when the apparatus operates as the intermediate equipment, and when the request for transmission is written in the token packet, and means for mediating the transmission right based on the priority order of the transmission data.

8. (original) A transmission apparatus as claimed in claim 6, wherein, when the apparatus operates as the intermediate equipment, and when there is a vacant area in the

packet trailer at the direction of the data transmission, the transmission data is sequentially written from a head position of the vacant area.

9. (original) A transmission apparatus as claimed in claim 6, wherein when the apparatus operates as the intermediate equipment and receives the data for its own apparatus, the packet trailer is transmitted to the apparatus of the next node as the vacant area of the packet trailer in which the data was stored.

10. (original) A transmission apparatus as claimed in claim 2, further comprising a terminal interface unit having an interface function for the terminal equipment which communicates the data, and the terminal interface unit includes a buffer memory for adjusting an output timing of the transmission data to the network.